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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/631,810	08/01/2003	Katsumi Kobayashi	Q76527	2013

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EXAMINER

HABTE, KAHSAI

ART UNIT PAPER NUMBER

1624

DATE MAILED: 05/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/631,810

Applicant(s)

KOBAYASHI ET AL.

Examiner

Kahsay Habte, Ph. D.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 April 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

1. Claims 1-8 are pending.

### *Response to Amendment*

2. Applicant's amendment filed 4/7/2005 in response to the previous Office Action (10/07/2004) is acknowledged. Rejection of claims 3-8 under 35 U.S.C. § 112, second paragraph (item 4) has been obviated.
3. The claims are drawn to multiple inventions for reasons set forth in the restriction requirement. The claims are examined only to the extent that they read on the elected invention. Cancellation of the non-elected subject matter is recommended in response to this Office Action. Note that Group I is drawn to tetracyclic ring where  $Z_2$  forms thiophene or furan and fused to a benzo ring. Claim 1 as amended is drawn to Group I and Group III, since it recites, "condensed ring to form a tetracyclic ring system". The condensed ring of tetracyclic ring system can be formed when a benzo ring is fused to  $Z_2$  = furan or thiophene (Group I) or a tetracyclic ring system can be formed when a heterocyclic ring is fused to  $Z_2$  = furan or thiophene (Group III). Applicants have to delete the non-elected subject matter from claim 1. Please see formulae I-5, I-6, I-29 or I-30 on pages 33 and 35 for guidance.

It is suggested that applicants amend the phrase in claim 1 " $Z_2$  represents an atomic groups selected from the groups consisting of a furan ring and a thiophene ring which has a condensed ring to form a tetracyclic ring" so that the claim read as " $Z_2$

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represents an atomic groups selected from the groups consisting of a furan ring and a thiophene ring which are condensed to a benzo ring to form a tetracyclic ring”.

Likewise, applicants have to delete the non-elected subject matter from claim 3. Variables  $V_2$  and  $V_3$  should form a benzo ring. When  $V_2$  and  $V_3$  are defined as a substituent, they don't form a tetracyclic ring (Group I).

### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention:

a. In claim 1, the phrase “which has a condensed ring to form a tetracyclic ring system” is indefinite. What is covered and what is not? What is the nature of the rings that are fused to the thiophene or furan ring? Note that according to the restriction requirement, Group I is drawn to tetracyclic ring system where the “benzo ring” is fused to furan or thiophene ring. It is suggested that applicants amend the claim 1 as follows: “ $Z_2$  represents an atomic groups selected from the groups consisting of a furan ring and a thiophene ring which are condensed to a benzo ring to form a tetracyclic ring”.

b. In claim 3 or elsewhere in the claims, the phrases "V<sub>1</sub> represents a substituent" is indefinite. What substituent? What are covered and what are not? Applicants have to recite the substituents whenever they use "substituent" in the claims.

### ***Response to arguments***

Applicant's argument filed 04/07/2005 has been fully considered but it is not persuasive.

Applicants argue that the term "substituents" does not render a claim indefinite and cite case laws for example, *Ex parte Altermatt*, 183 USPQ 436 (Bd Pat App & Int 1974) where the term "substituted" was held to be not indefinite. See also *Hawley's Condensed Chemical Dictionary*, 14<sup>th</sup> Ed., where the term substituent is defined as "[a]n atom or radical that replaces another in a molecules as the result of a reaction", and *In re Mertens*, 74 USPQ 311 (Bd. Pat. App. & Int. 1947) where the term "substituent" was recognized "in chemical parlance" to mean "ordinarily either an atom or a radical which enters into the structure of a molecule and replaces another atom or radical". The examiner disagrees with applicants. The examiner did not raise this issue, because the meaning of "substituent" is ambiguous. The issue is that the phrase "V<sub>1</sub> represents a substituent" is indefinite. Applicants are claiming any substituent. According to page 19 of the specification, "V, the substituent represented by V is not particularly restricted". What groups of substituents are excluded? For example, are the substituents of P-bound included? Are metals included? Are polymers included? It is recommended that applicants recite specific substituents from pages 19-21 of the specification.

c. In claims 5-6 and 8, the phrase "dissociable group" is not clear. What are covered and what are not? It is noted that applicants recite at least one dissociable group that are contained in the substituents substituted on the heterocyclic group represented by  $Z_2$  (i.e. a sulfo or a carboxyl group), but applicants don't recite other dissociable groups that applicant intend to claim. What are the other dissociable groups? What does the term actually mean? This is not a standard nomenclature.

### ***Response to arguments***

Applicant's argument filed 04/07/2005 has been fully considered but it is not persuasive.

Applicants argue that the term "dissociation" according to *Hawley's Condensed Chemical Dictionary*, 14<sup>th</sup> Ed., mean "a process by which a chemical combination breaks up into simpler constituents as a result of either added energy, as in the case of gaseous molecules dissociated by heat, or the effect of a solvent on a dissolved polar compound (electrolytic dissociation)." The examiner agrees with the definition, but this is not relevant to the issue. Applicant's failure to answer simple questions raised in previous Office Action is an indication that the claims is indefinite. What dissociable groups are covered and what are not?

In regard to the definition of dissociation, any moiety will dissociate if it is exposed to sufficient energy. Applicants also argue that one skilled in the art would understand that a "dissociable group" means a group, which is broken off from the

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remainder of the compound. The examiner disagrees with applicants. One skilled in the art would not understand what the phrase "dissociable groups" cover and what it doesn't because anything can break off. There is no guidance in the specification or a complete list of dissociable groups. Applicants can overcome this rejection by either delete the phrase "dissociable groups" or amend the claims so that it reads "dissociable groups selected from sulfo and carboxyl".

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

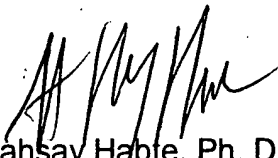
### ***Conclusion***

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5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kahsay Habte, Ph. D. whose telephone number is (571) 272-0667. The examiner can normally be reached on M-F (9.00AM- 5:30PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's acting supervisor, James Wilson can be reached at (571) 272-0661. The fax phone number for the organization where this application or proceeding is assigned is (571)-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Kahsay Habte, Ph. D.  
Examiner  
Art Unit 1624



Mark L. Berch  
Primary Examiner  
Art Unit 1624

KH  
May 11, 2005